

## INTERNATIONAL COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark  
Office  
(Box PCT)  
Crystal Plaza 2  
Washington, DC 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 11 December 1998 (11.12.98)	
<b>International application No.</b> PCT/IL98/00204	<b>Applicant's or agent's file reference</b> 30799
<b>International filing date</b> (day/month/year) 29 April 1998 (29.04.98)	<b>Priority date</b> (day/month/year) 01 May 1997 (01.05.97)
<b>Applicant</b> DANZIGER, Yochay et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

24 November 1998 (24.11.98)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland	<b>Authorized officer</b> R. Raissi
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

SANFORD, T.  
SANFORD T. COLB & CO.  
P.O. Box 2273  
Rehovot 76122  
ISRAEL

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

17.06.99

Applicant's or agent's file reference  
30799

IMPORTANT NOTIFICATION

International application No.  
PCT/IL98/00204

International filing date (day/month/year)  
29/04/1998

Priority date (day/month/year)  
01/05/1997

Applicant

YEDA RESEARCH AND DEVELOPMENT CO. LTD. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



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REC'D 22 JUN 1998

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 30799	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IL98/00204	International filing date (day/month/year) 29/04/1998	Priority date (day/month/year) 01/05/1997
International Patent Classification (IPC) or national classification and IPC H01S3/08		
Applicant YEDA RESEARCH AND DEVELOPMENT CO. LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  24/11/1998	Date of completion of this report  17.05.99
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer  Pazonis, G  Telephone No. (+49-89) 2399



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL98/00204

## I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

### Description, pages:

1-19 as originally filed

### Claims, No.:

1-15 as originally filed

### Drawings, sheets:

1/10-10/10 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION RÉPORT

International application No. PCT/IL98/00204

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1,2,4,5,7,9,10,14
Inventive step (IS)	Yes:	Claims	
	No:	Claims	3,6,8,11,12,13,15
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

### 2. Citations and explanations

**see separate sheet**

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

V.2.

1. Reference is made to the following documents:

D1: Soviet Journal of quantum Electronics, vol. 10, no. 8, August 1980, pages 1013-1016

D2: Optical and Quantum Electronics, vol. 8, no. 6, November 1976, pages 537-544

2. Claim 1:

Insofar as the present text of claim 1 can be understood (see part VIII), D1 (see fig. 3 and whole document) discloses an optical resonator comprising reflector elements (mirrors 12 and 7) and at least one "discontinuous phase element" (dielectric strip) disposed between said reflector elements, i.e. D1 anticipates the subject-matter of claim 1.

3. Claims 2,4,5,7,9,10,14:

D1 (see fig. 3 and whole document) discloses an optical resonator comprising the additional features of these claims.

4. Claims 3,6,8,11,12,13:

The additional features of these claims do not appear to solve any problem in an inventive way. It is within the routine experience of a skilled person to apply the additional features of these claims to the optical resonator of D1, depending on the particular design requirements. Thus he would arrive at resonators according to these claims without using any inventive skills.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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5. Claim 15:

The additional features of this claim solve the problem of canceling distortions and eliminate phase discontinuities in the output beam from the optical resonator.

However, D2 (see fig. 2 and whole text) recommends the use of an external discontinuous phase element in order to eliminate phase discontinuities ("extra-cavity phase compensation") in the output beam from an optical resonator, thus solving the same problem with claim 15.

Thus it would be obvious to the skilled person to apply the teaching of D2 to the optical resonator of D1 and thus to arrive at the subject-matter of claim 15 without the use of inventive skills.

VII.

1. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

VIII.

1. The subject-matter of claim 1 is not clear, contrary to the requirements of Art. 6 PCT, because the meaning of the expression "discontinuous phase element" is not clear.

According to the description on page 11, third complete paragraph, the discontinuous phase element introduces discontinuous phase changes to the modes propagating inside the resonator so that the divergence of the undesirable modes is greater than that of the desired mode, resulting in a broadening of the undesirable mode intensity distribution and preventing their propagation in the laser.

These features should have been introduced in claim 1 for clarity.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>30799</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IL 98/ 00204</b>	International filing date (day/month/year) <b>29/04/1998</b>	(Earliest) Priority Date (day/month/year) <b>01/05/1997</b>
Applicant <b>YEDA RESEARCH AND DEVELOPMENT CO. LTD. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the **title**, ☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. 1B, 7 ☐ as suggested by the applicant.

☐ None of the figures.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.



# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL 98/00204

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

Line 1, add "(86,204)" after "element"

Line 2, add "(20,23)" after "elements"

Line 4, add "(204)" after "element"

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IL 98/00204

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H01S3/08 H01S3/098

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H01S

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KOL'CHENKO A P ET AL: "Control of the structure of transverse laser modes by phase-shifting masks" SOVIET JOURNAL OF QUANTUM ELECTRONICS, US, vol. 10, no. 8, August 1980, pages 1013-1016, XP002074489 see section 1, from paragraph 3 see section 4, paragraph 1 idem	1,2,4,5, 7,9,10, 14
Y	---	15
Y	CASPERSON L W: "Phase compensation of laser beam modes" OPTICAL AND QUANTUM ELECTRONICS, UK, vol. 8, no. 6, November 1976, pages 537-544, XP000560565 see sections 1,2,4; figures 1-3 ---	15
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 August 1998

Date of mailing of the international search report

28/08/1998

Name and mailing address of the ISA

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Authorized officer

Iasevoli, R

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IL 98/00204

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CASPERSON L W: "How phase plates transform and control laser beams" LASER FOCUS WORLD, MAY 1994, US, pages 223-228, XP002074332 cited in the application see the whole document -----	1, 15
X, P	WO 97 34344 A (YEDA RES & DEV ET AL) 18 September 1997 see claims 1, 11-21; figures 1-14 -----	1-15

# INTERNATIONAL SEARCH REPORT

## Information on patent family members

### Information on patent family members

International Application No

PCT/IL 98/00204

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9734344      A	18-09-1997	NONE	
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